

Archeological Surveys NASA remote sensing technology is being employed in archeological studies of the Anasazi Indians, who lived in New Mexico one thousand years ago. Under contract with the National Park Service, NASA's Technology Applications Center at the University of New Mexico is interpreting multispectral scanner data and demonstrating how aerospace scanning techniques can uncover features of prehistoric ruins not visible in conventional aerial photographs.

The Center's initial study focused on Chaco Canyon, a pre-Columbia Anasazi site in north-eastern New Mexico. Chaco Canyon is a national monument and it has been well explored on the ground and by aerial photography. But the National Park Service was interested in the potential of multispectral scanning for producing evidence of prehistoric roads, field pat-

terns and dwelling areas not discernible in aerial photographs. The multispectral scanner produces imaging data in the invisible as well as the visible portions of the spectrum. This data is converted to pictures which bring out features not visible to the naked eye or to cameras.

The Technology Applications Center joined forces with Bendix Aerospace Systems Division, Ann Arbor, Michigan, which provided a scanner-equipped airplane for mapping the Chaco Canyon area. The NASA group processed the scanner images and employed computerized image enhancement techniques to bring out additional detail.

The study concluded that multispectral analysis can be valuable to field archeologists in their searches for agricultural patterns, transportation links and structures, even underground structures. The accompanying photos illustrate the advantages of multispectral scanning over conventional aerial photography. The picture below is an aerial photo of a portion of the Chaco Canyon Anasazi site; at left is a scanner image of the same area. The circled portion of the scanner image shows a number of blue patches which are not in evidence in the aerial photo. The blue patches proved to be kivas, large underground burial or ceremonial chambers. Analysis of other images similarly showed features not identifiable in aerial photos.

Impressed by the results of the Chaco Canyon survey, the National Park Service contracted with the Technology Applications Center for another scan-analysis study of a different Anasazi site, this one at Bandelier in north central New Mexico.



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